

Dan Coster

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Matriculation Exam ('Bagrut') G.P.A 115/115 ■ Psychometric Score (SAT equivalent) 764/800

EDUCATION

2020 – Present: PhD. Computer Science (*Tel Aviv University*)

Research subject: Methods for risk prediction of time-series electronic medical records data under the supervision of Prof. Ron Shamir.

2020 – Present: Medical Student at Sackler Medical School (*Tel Aviv University*)

2017 – 2020: MSc. Computer Science & Bioinformatics (*Tel Aviv University*)

Research subject: Methods for time-series survival prediction, under the supervision of Prof. Ron Shamir
GPA: 96/100

2015 – 2019: Adi Lautman Interdisciplinary Program for Outstanding Students (*Tel Aviv University*)

The excellence program of Tel-Aviv University (15 students). An interdisciplinary program focusing on Computer Sciences, Biology and Medicine. Worked on a project aimed to develop a method for identifying cell tissue composition, based on gene expression data, utilizing machine learning and various optimizations in Prof. Eran Halperin's lab.

PROFESSIONAL EXPERIENCE

01/2018 – 01/2021: Statistical Consultant (*Tel-Aviv Sourasky Medical Center*)

Statistical consultant for various studies of big data in the fields of infectious diseases, cancer screening and ophthalmology. From the initialization of the research concepts to analyzing EMR data.

01/2017 – 05/2018: Data Science Consultant (*Cyberbit*)

Managing the integration between research team operation and algorithmic team. Algorithm design for detecting cyber-attacks based on data from end-point agents.

12/2014 – 01/2017: Security Researcher (*CA-Security, acquired by Elbit Systems*)

Developing a behavioral cyber security product, analyzing malware samples to identify new techniques by utilizing various analyzing tools, such as Sniffers, Sysinternals' utilities, sandboxes, etc. Data analyzing in Python and SQL as part of the feature engineering process.

10/2013 – 09/2014: Product Manager (*IDF – Intelligence Unit 8200*)

Intelligence officer of two core Cyber operations with strategic influence, taking part in developing innovative vectors of the operations, and prioritizing the operations' features. Designing systems, supporting the operations and communications between all end-users and operational field teams, with cross-unit tech coordination in the intelligence community.

10/2012 – 10/2013: Team Leader (*IDF – Intelligence Unit 8200*)

Managing an intelligence response initiative in a specific field. Management of semiannual and annual professional roadmaps for the unit's operations base.

04/2010 – 10/2012: Intelligence Officer (*IDF – Intelligence Unit 8200*)

Intelligence analyst, commanding a team of 7 analysts and leading a heterogenic intelligence team of 20 soldiers specializing in data mining and big-data analyzing.

TEACHING EXPERIENCE

10/2020 – 05/2021: Lecturer (*Tel-Aviv University*)

Course: Workshop on Machine Learning in Healthcare. A workshop for 3rd year undergraduate students. Responsibilities include developing the curriculum, giving lectures, and guiding students in projects related to analysis of electronic medical records data.

01/2020 – 02/2020: Lecturer (*Assuta Hospital in Ramat HaHayal*)

Course: Introduction for programming in R for physicians and researchers. Responsibilities include developing the curriculum, giving lectures, teaching in recitations.

10/2018 – 07/2020: Teaching Assistant (*Tel-Aviv University*)

Courses: Computational Genomics, Algorithms and Applications in Social Networks.

MANUSCRIPTS

D. Coster, A. Wasserman, E. Fisher, O. Rogowski, D. Zeltser, I. Shapira, D. Bernstein, Ahuva Meilik, E. Raykhshtat, P. Halpern, S. Berliner, S. Shenhar-Tsarfaty, R. Shamir. "Using the kinetics of C-reactive protein response to improve the differential diagnosis between acute bacterial and viral infections". *Infection*, <https://doi.org/10.1007/s15010-019-01383-6>

T. Menes, D. Coster, D. Coster, S. Shenhar-Tsarfaty. "Contribution of clinical breast exam to cancer detection in women participating in a modern screening program". *BMC Women's Health*, <https://doi.org/10.1186/s12905-021-01507-x>

A. Schupper, S. Almashanu, D. Coster, R. Keidar, M. Betser, N. Sagiv, H. Bassan. "Metabolomics of Small and Large for Gestational Age Newborns". *Early Human Development*, <https://doi.org/10.1016/j.earlhumdev.2021.105422>

D. Bernstein †, D. Coster †, S. Berliner, I. Shapira, D. Zeltser, O. Rogowski, A. Adler, O. Halutz, T. Levinson, O. Ritter, S. Shenhar-Tsarfaty, A. Wasserman. "C-reactive protein velocity discriminates between acute viral and bacterial infections in patients who present with relatively low CRP concentrations". *BMC Infectious Diseases*, <https://doi.org/10.1186/s12879-021-06878-y>

O. Noy †, D. Coster †, M. Metzger, I. Atar, S. Shenhar-Tsarfaty, G. Rahav, S. Berliner, O. Rogowski, R. Shamir. "A machine learning model for predicting deterioration of COVID-19 inpatients". *Nature Scientific Reports*, <https://doi.org/10.1038/s41598-022-05822-7>

S. Baum †, I. Atar †, D. Coster, S. Dovrat, M. Solomon, E. Sprecher, T. Zeeli †, A. Barzilai Aviv †. "Relationship between the severity of *Pemphigus Vulgaris* and PCR-positive *Herpes Simplex virus*". *Acta Dermato-Venerologica*, <https://doi.org/10.2340/actadv.v102.917>

D. Coster, E. Fischer, S. Shenhar-Tsarfaty, T. Menes, S. Berliner, O. Rogowski, D. Zeltser, I. Shapira, E. Halperin, S. Rosset and M. Gorfine, 2021. "Early detection of prostate gland and breast cancer risk based on routine check-up data using survival analysis trees for left-truncated and right-censored data". *Machine Learning for Healthcare Conference* (In review)

E. Shpigelman †, A. Hochstadt †, D. Coster, I. Merdler, E. Ghantous, Y. Szekeley, Y. Lichter, P. Taieb, A. Banai, O. Sapir, Y. Granot, L. Lupu, A. Borohovitz, S. Sadon, S. Banai, R. Rubinshtein, Y. Topilsky, R. Shamir, "Clustering of Clinical-Echocardiographic Phenotypes of Covid-19 Disease Using Machine-Learning Techniques" (Under review, *European Heart Journal - Cardiovascular Imaging*)

D. Coster, A. Rafie, N. Savion, D. Coster, R. Rachmiel, S. Kurtz, S. Berliner, I. Shapira, D. Zeltser, O. Rogowski, S. Shenhar-Tsarfaty, M. Waisbourd, "The Effect of Body Mass Index Reduction on Intraocular Pressure in a Large, Prospective Population-based Cohort Study in Israel" (in preparation)

E. Goldschmidt, E. Rannon, D. Coster, R. Shamir. "Machine Learning Algorithm for Predicting Appropriateness of Antibiotic Treatment among ICU inpatients" (in preparation)

D. Bernstein, D. Coster, S. Berliner, O. Rogowski, A. Adler, T. Levinson, S. Shenhar-Tsarfaty, A. Wasserman, U. Obolski. "Early detection of antibiotic therapy appropriateness using CRP kinetics" (in preparation)

D. Coster, A. Kodesh, A. Fardman, S. Tiosano, Y. Moshkovits, D. Bernstein, M. Livni, A. Kaplan, R. Shamir, E. Maor. "Decreasing Albumin Within Normal Range is Associated with Increased Likelihood of Ischemic Heart Disease" (in preparation)

† - Contributed Equally.

POSTERS AND PRESENTATIONS

D. Coster, I. Krause, L. Sheena, S. Shenhar-Tsarfaty, S. Berliner, B. Boursi, E. Maor, R. Shamir. "Predicting personal risk of developing cancer based on data from routine check-ups from multi-center cohort". Poster presentation. Computational Challenges in Very Large-Scale 'Omics' conference, University of California, Berkeley, USA, July 18-21, 2022.

D. Coster, A. Rafie, R. Shamir, D. Coster, R. Rachmiel, S. Kurtz, S. Berliner, O. Rogowski, S. Shenhar-Tsarfaty, M. Waisbourd. "Effect of Body Mass Index Reduction on Intraocular Pressure in a Large Population-based Cohort Study". Poster presentation, Faculty of Medicine Research Fair 2022, April 13, 2022.

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, T. Menes, S. Berliner, E. Halperin, S. Rosset, M. Gorfine, R. Shamir. "Early detection of breast and prostate cancer risk based on routine check-up data using machine learning and survival analysis". Poster presentation, Machine Learning in Computational and Systems Biology Track, ISMB/ECCB 2021, July 25-30, 2021.

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, T. Menes, S. Berliner, E. Halperin, S. Rosset, M. Gorfine, R. Shamir. "Early detection of breast and prostate cancer risk based on routine check-up data using machine learning and survival analysis". Poster presentation, ISCR 2021, May 27, 2021.

O. Noy ‡, D. Coster ‡, M. Metzger, I. Atar, S. Shenhar-Tsarfaty, G. Rahav, S. Berliner, O. Rogowski, R. Shamir. "A machine learning model for predicting deterioration of COVID-19 inpatients". ICLR, Machine Learning for Preventing and Combating Pandemics Workshop, 2021 (poster);

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, T. Menes, S. Berliner, E. Halperin, S. Rosset, M. Gorfine, R. Shamir. "Early detection of cancer based on EMR data - a modern screening approach". Invited short talk, the 3rd virtual seminar of Cancer Biology Research Center (CBRC), TAU, November 18 2020.

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, T. Menes, S. Berliner, E. Halperin, S. Rosset, M. Gorfine, R. Shamir. "Early detection of cancer based on EMR data - a modern screening approach". A student talk, Edmond J. Edmond J. Safra Center Annual Retreat 2020, Online, October 14, 2020.

D. Coster ‡, O. Noy ‡, S. Shenhar-Tsarfaty, O. Rogowski and R. Shamir. "A predictive model for deterioration of Covid-19 patients". Poster presentation, Edmond J. Safra Retreat 2020, online, October 14, 2020

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, S. Berliner, E. Halperin, S. Rosset, M. Gorfine, R. Shamir. "A model for early detection of cancer risk based on routine check-up data using random forest of survival analysis trees for left-truncated and right-censored data". Poster presentation, Edmond J. Safra Center Annual Retreat 2019, Maagan, May 26-27, 2019.

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, S. Berliner, E. Halperin, S. Rosset, M. Gorfine, R. Shamir. "A model for early detection of cancer risk based on routine check-up data using random forest of survival analysis trees for left-truncated and right-censored data". Poster presentation and Short-Talk, Keystone Symposia - Digital Health: From Science to Application, Colorado, January 21-25, 2019.

D. Coster, E. Fisher, S. Rosset, S. Shenhar-Tsarfaty, S. Berliner, E. Halperin and R. Shamir. "Early detection of cancer risk based on routine check-up data". Poster presentation, The 20th Israeli Bioinformatics Symposium (IBS 2018), Rappaport Faculty of Medicine, Technion, Haifa, Israel, October 7, 2018.

D. Coster, S. Shenhar-Tsarfaty, S. Berliner and R. Shamir. "Distinguishing between acute bacterial and viral infections based on EMR data". Poster presentation, Edmond J. Safra Center Annual Retreat 2018, Maagan, May 27-28, 2018.

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, S. Berliner, E. Halperin, S. Rosset, R. Shamir "Early detection of cancer risk based on routine check-up data". Poster presentation, the annual meeting of the Genetic Society of Israel, FRONTIERS IN GENETICS XI, Tel Aviv University, February 7, 2018.

D. Coster, E. Fisher, S. Shenhar-Tsarfaty, S. Berliner, E. Halperin, S. Rosset and R. Shamir. "A model for early detection of cancer risk based on routine check-up data". Poster presentation, conference on Biomedical Big Data Science: Vision, Promises and Challenges, Technion, Israel, December 13-14, 2017.

HONORS & AWARDS

2021 – Marcus and Celia Maus Prize in Computer Science, Tel Aviv University

2021 – Outstanding research project of Cancer Biology Research Center (CBRC)

2020 – 2nd best poster prize in the 15th retreat of the Edmond J. Safra center for Bioinformatics.

2017 – Google's MI3 research award for excellence students

2014 - A personal letter of appreciation from 8200-unit commander.

2013 – Intelligence award for excellence accomplishment, Unit 8200, IDF

2012 – Chief of Staff personal appreciation award for an Intelligence project, IDF

2009 – 3rd place in the Physics Olympics (named after Shalhevet Friar) at the Weizmann Institute of Science, Rehovot.

2007 – Finals of the Biology Olympics at the Haifa University

ADDITIONAL ACADEMIC ACTIVITIES AND FELLOWSHIPS

2022 – Djerassi-Elias Institute of Oncology travel fellowship.

2018-Present – Edmond J. Safra center for Bioinformatics scholarship for Ph.D. students.

2017-2020 – M.Sc. excellence scholarship, Edmond J. Safra Center for Bioinformatics, Tel-Aviv University.

2015-2019 – Excellence scholarship, The Adi Lautman Interdisciplinary Program for Outstanding Students, Tel-Aviv University.

EXTRA CURRICULAR

2020: 8400 – Heath Network "SpearHealth" program

2019: Merage Leadership Program Medical Devices/Life Sciences

2006 – 2009: Guide and head of youth group in the Israeli Scouts movement

2006 – 2009: Founding and operating "Yali" movement (Kids for Kids)- volunteering in various organizations in Israel, with more than 100 volunteers.

Miscellaneous

Language Skills: English, Hebrew, and basic Arabic

Programming Languages: Python, R, SQL, C (basic) and Java (basic)

* All relevant documents and certificates as well as recommendation letters will be available upon request.